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DISCUSSION

Dr Michael J. Costanza (Syracuse, NY). Dr Baril and the Mount Sinai group have addressed an important problem that virtually every vascular specialist has faced: how to manage renal artery stenosis in a patient awaiting or undergoing an endovascular abdominal aortic aneurysm repair. The decision-making on these patients can be challenging for several reasons, which you have clearly outlined in your paper.

Your results indicate that renal artery stenting before, during and after EVAR is feasible even with transrenal fixation devices. I am convinced that we can perform renal artery stenting in these patients, but I'd like you to tell us if we should be doing this.

My first question is about the natural history of renal artery stenosis and EVAR. Have you looked at your center's over 900 endovascular aneurysm repairs to identify and track patients with renal artery stenosis who are managed medically after their EVAR? This information would be helpful in determining how aggressively we should look for and treat renal artery stenosis in these patients.

Secondly, did renal artery stenting confer any clinical benefits for these treated patients? Was their blood pressure controlled with fewer medications? Did they have a slower rate of renal decline? Although you did not detect a change in creatinine clearance in your series, creatinine can be an insensitive indicator for renal function. Also, only a third of your patients had renal insufficiency, which implies that the majority of patients either were hypertensive or asymptomatic.

And finally, detailed CT scans and CT angiograms have made preoperative angiography unnecessary for many patients awaiting EVAR. How would you suggest that these patients be managed with respect to evaluating them for renal artery stenosis? Is it reasonable to identify and treat renal artery stenosis at the time of an endovascular aneurysm repair or should they be treated in a staged fashion?

Dr Donald T. Baril. In reference to your first question, as to whether we have looked at the natural history of renal stenosis in these patients, we have previously, and observed that essentially patients with renal artery stenosis with a transrenal aortic endograft tend to have the same natural course as if the graft is not there. They have progression of the disease, but not at a rate higher than would be expected without the presence of the endograft.

That being said, the patients that we choose to place renal artery stents in preoperatively are those that have high-grade

stenosis greater than 90%. Even in asymptomatic patients we had a concern of atheroembolic events at the time of aortic endograft deployment.

Additionally, patients with 70% or greater stenosis in the setting of clinical hypertension or renal insufficiency have also been stented.

In reference to your second question of the clinical benefits, that was not specifically examined in this series. There are anecdotal reports from our own institution that some patients have been weaned off antihypertensives whereas others have continued to require equal or greater doses. However, the patients with renal insufficiency who underwent renal artery stenting have basically maintained their renal function.

Finally, in reference to your last question, our institution has continued to do preoperative angiography for a number of different reasons. One is the belief that this is the best means of measuring aneurysm and aortic length. Additionally, a large number of our cases are referred to our tertiary referral center and require adjuvant therapy, whether it be a renal artery stent or hypogastric embolization, before endograft deployment.

That being said, if a renal artery lesion is found on CT angiography, the next step would be to perform a renal artery duplex to determine the clinical significance of the stenosis. Based on the results of the duplex, we would recommend a staged procedure to minimize operative time as well as contrast load in what is often a renal insufficient population.